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Memorandum

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Date: 16 March 2012

Subject: Summary Deep Source Investigations Conducted in 2002 and 2004 Former TRW-Benchmark Site, City of Industry, California

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Orion Environmental Inc. (Orion) has prepared this memorandum to summarize soil and groundwater investigations conducted at the former TRW Benchmark site in 2002 and 2004. This memorandum was requested by the U.S. Environmental Protection Agency (USEPA) in emails dated 26 January 2012 and 6 March 2012.

In 2002, a deep source area investigation was conducted to assess (1) the lateral and vertical distribution of volatile organic compounds (VOCs) and 1,4-dioxane in groundwater between depths of about 55 up to 94 feet below ground surface (bgs) and (2) the lithology to depths of 75 to 94 feet bgs at the site.

At the time of this investigation, groundwater levels had decreased from an average of approximately 30 feet bgs between 1995 and 1999 to approximately 42 feet bgs in 2002. TRW Inc. (TRW; currently Northrop Grumman Systems Corporation [Northrop Grumman]) conducted the investigation voluntarily to evaluate the potential for enhancing the onsite remedial activities. A work plan was not submitted to the Los Angeles Regional Water Quality Control Board (RWQCB) for this investigation.

In 2004, a deep soil boring investigation was conducted to assess (1) the presence of VOC-impacted saturated soil near former source areas on site and (2) the potential for migration of VOCs (including dense non-aqueous phase liquid [DNAPL]) from the site toward offsite well W20. Well W20 is located west of the site on the former West Coast Sand & Gravel property. Northrop Grumman conducted the investigation activities voluntarily to continue to evaluate the potential for enhancing remedial activities being conducted on site, and to assess the potential for a contaminant pathway to well W20 off site; a work plan was not submitted to the RWQCB.

Background

The former Benchmark facility was demolished and shallow VOC-impacted soil was excavated and treated on site from 1990 to 1992. Additional deeper soil removal actions were conducted to remove and dispose of soil impacted by metals (copper and chromium). An in situ soil vapor extraction (SVE) system was installed in 1992. A total of 34 vapor extraction wells and horizontal vent lines were installed to remediate VOC-impacted vadose zone soil. The wells and horizontal vent lines were connected to two blowers capable of extracting up to 800 cubic feet per minute. The RWQCB issued a no further action letter for vadose zone soil remediation in 1998, but the system was not removed immediately.

TRW (and later Northrop Grumman) continued to operate the SVE system after receiving soil closure in 1998 to enhance cleanup of the saturated zone exposed during low water level periods. The system operated full time, except for downtime due to scheduled maintenance or unscheduled equipment repair, through 2000. In 2001 system cycling began until the system was finally taken out of operation in 2007. A summary of system operation was submitted to the RWQCB in annual status reports.

A groundwater pump-and-treat system was installed at the site in 1996. The extraction wells were located along the northern property boundary in the former source areas and downgradient of a former developer/still. The extraction wells were screened above the historical high water table to 60 feet bgs. In 2002, groundwater levels had decreased from an average of approximately 30 feet bgs between 1995 and 1999 to a low of approximately 42 feet bgs. The daily extraction rate of the system had declined by 50 percent compared to 2001.

Site Geology

The saturated interval beneath the site and vicinity has been subdivided into stratigraphic zones. Three general stratigraphic zones have been defined in the upper 200 feet based on lithology and depth, although the lithology within each zone may be gradational. The zones have been designated, from shallowest to deepest, as Zone A, Zone B, and Zone C.

Zone A is the shallowest zone and was arbitrarily defined as the interval from the water table to 60 feet bgs. This designation was based on the depth of the wells initially installed on site. The thickness of Zone A varies depending on the water table elevation. This depth interval has one or two saturated sand units (depending on water table elevations) and the water table in Zone A wells is typically 6 to 10 feet higher than the potentiometric surface of the next deeper sand unit. Zone A is also the groundwater interval that was remediated by the onsite pump-and-treat system.

The zones below Zone A were defined by permeable intervals. As a result, there are a sequence of unnamed lower permeability interbedded silts and clays beneath Zone A on the Benchmark site.

Zone B is the first relatively permeable (i.e., sandy) interval encountered below a depth of 60 feet that can be correlated between well locations. Zone B strata include predominantly silty sand and sand, interbedded with clay, extending from a depth of about 80-90 to 115 feet bgs beneath the Benchmark site.

Zone C is defined as the most permeable zone identified in the interval between 150 and 200 feet bgs. Boring logs and electric log data indicate that the Zone C interval consists of silty to gravelly sand interbedded with clay. The intervals between Zones A and B and Zones B and C are predominantly fine-grained and contain an interbedded fine-grained sequence of sediments.

Field Investigation Activities

Deep Source Area Investigation

Eight soil borings (CPT-1 through CPT-8) were drilled on site from 2 to 10 December 2002 by Gregg In Situ, Inc., of Signal Hill, California, using a cone penetration test (CPT) rig. Borings were logged continuously using measurements of cone bearing, sleeve friction, and pore water pressure.

One soil boring (CB-CPT4) was drilled adjacent to boring CPT-4 to obtain soil lithology and collect soil samples for physical properties. Boring CB-CPT4 was drilled on 2 and 5 December 2002 by West Hazmat Drilling Corp., of Anaheim, California, using a hollow-stem auger rig. The boring was drilled to a depth of 80 feet and a soil core was collected from 40 to 80 feet bgs.

Figure 2 is a site plan showing the boring locations. The following table summarizes CPT boring depths and rationale for each location. Orion has been unable to find a work plan or other document that provides the rationale for the selection of each location, so the rationale provided below is based on the best recollection of the project team.

Boring	Total Depth (feet bgs)	Rationale for Boring Location
CPT-1	80	Near extraction well W3 and former degreaser with a history of trichloroethene (TCE) use
CPT-2	89	Near extraction well W9 and downgradient of former developer/still with a history of 1,1,1-trichloroethane (TCA) use
CPT-3	90	Between extraction wells W8 and W9 and downgradient of former utility corridor with a history of TCA storage

Boring	Total Depth (feet bgs)	Rationale for Boring Location
CPT-4	90	Near extraction well W8 and downgradient of former utility tunnel with a history of TCA transport
CPT-5	90	Upgradient of former source areas and extraction well W10
CPT-6	90	At former developer/still source with a history of TCA use
CPT-7	90	Downgradient of CPT-6 at former developer/still with a history of TCA use
CPT-8	90	Downgradient of former utility tunnel with a history of TCA transport

A total of 34 grab groundwater samples were collected from the 8 borings. Samples were collected from each interval attempted. Samples collected from four intervals (CPT-4 at 74 feet bgs, CPT-6 at 88 feet bgs, CPT-7 at 80 feet bgs, and CPT-8 at 73 feet bgs) had reduced sample volumes due to limited water entering the sample chamber.

The boring logs are in Attachment A. Field investigation and quality assurance/quality control (QA/QC) procedures for drilling and sampling are in Attachment B.

Deep Soil Boring Investigation

Three soil borings (DB-1 to DB-3) were drilled on site between 30 and 31 July 2004 by Prosonic Corporation (Prosonic), of Signal Hill, California, using sonic drilling techniques. Three additional borings (DB-4 to DB-6) were drilled off site near well W20 between 1 and 2 October 2004 by Prosonic. The sonic rig provided continuous-core soil recovery. The soil cores were placed in approximately 3- to 5-foot-long plastic bags for lithologic logging. Soil samples for chemical analyses were generally collected from the recovered cores at 10-foot intervals in each boring from about 40 feet bgs (the approximate depth of the water table at the time) to the total depth of each boring. However, additional soil samples were collected based on field observations of photoionization detector headspace readings.

Figure 2 is a site plan showing the soil boring locations. The following table summarizes boring depths and rationale for each boring location. Orion has been unable to find a work plan or other document that provides the rationale for the selection of each location, so the rationale provided below is based on the best recollection of the project team.

Boring	Total Depth (ft bgs)	Rationale for Boring Location
DB-1	105	Near extraction well W9 and downgradient of former developer/still with a history of TCA use
DB-2	105	Near extraction well W8 and downgradient of former utility tunnel with a history of TCA transport
DB-3	105	At former developer/still source with a history of TCA use

Boring	Total Depth (ft bgs)	Rationale for Boring Location
DB-4	105	Between onsite well W3 and offsite well W20
DB-5	115	Between onsite well W3 and offsite well W20
DB-6	105	Upgradient of offsite well W20

The boring logs are in Attachment A. Field investigation and QA/QC procedures for drilling and soil sampling are in Attachment B.

Analytical Program

Groundwater and soil samples were delivered to either Centrum Analytical Laboratories, Inc., of Signal Hill, California, or Severn Trent Laboratories, Inc., of Santa Ana, California. Groundwater samples were analyzed for VOCs, including 1,4-dioxane, by USEPA Method 8260B. The groundwater analytical results are presented in Table 1. Selected soil samples were analyzed for VOCs by USEPA Method 8260. The soil analytical results are presented in Table 2. A soil sample from boring DB-3 at 70 feet bgs was also analyzed for metals by USEPA Method 6010B and n-hexane extractable material by USEPA Method 1664A to profile the soil for disposal purposes.

In addition, the soil core from boring CB-CPT4 was submitted to PTS Laboratories, Inc. (PTS), of Santa Fe Springs, California, for the following tests:

- Core logging and photography
- Grain size in accordance with the American Society for Testing and Materials (ASTM) D4464M (laser light scattering)
- Moisture content in accordance with ASTM D2216
- Porosity, bulk density, grain density, and pore fluid saturation using American Petroleum Institute Method RP40
- Hydraulic conductivity using ASTM D5084
- Total organic carbon using Walkley-Black Method.

Chain-of-custody forms, laboratory analytical reports, laboratory QA/QC data, and data validation reports are included in Attachment C. Validation of the data was performed in March 2012.

Investigation Results

Deep Source Area Investigation

The subsurface soil types recorded by the CPT generally consisted of predominately interbedded fine-grained soil from 60 to 80 feet bgs. Boring CPT-4 contained a coarse-grained layer from roughly 64 to 68 feet bgs that was generally not observed in the other CPT borings on the Benchmark property. Soil cores collected from soil boring CB-CPT-4, drilled adjacent to CPT-4, indicate that the predominantly coarse-grained layer extends roughly 5 feet deeper (64 to 73 feet bgs). In general, more sand was observed both east and west of the investigation area as shown by borings CB-CPT-4 and CPT-4 (to the east) and well W20 (to the west). Lithologic cross sections are shown on Figures 3, 4, and 5.

CPT borings located adjacent to groundwater extraction wells contained elevated TCE and 1,1-dichloroethene (1,1-DCE) concentrations in grab groundwater samples collected below the screens of the existing extraction wells. A decrease in TCE and 1,1-DCE concentrations with depth was observed in all CPT borings except for CPT-8. Groundwater concentrations in extraction wells at the time of the investigation were significantly lower than the historical highs observed before the groundwater extraction system was started in 1996. Selected CPT grab groundwater results are discussed below.

CPT-1/W3: The highest TCE concentration (7,400 micrograms per liter [µg/l]) was reported at boring CPT-1, located in the area of extraction well W3, at a depth of 55 to 58 feet bgs. The well screen for well W3 extends from 25 to 55 feet bgs. The highest historical TCE concentration reported at well W3 (73,000 µg/l) was collected in November 1991 before groundwater extraction began in 1996. The TCE concentration in well W3 in December 2002 was 84 µg/l. The next grab groundwater sample collected at CPT-1, from 63 to 66 feet bgs, had a TCE concentration of 130 µg/l.

CPT-6: The highest 1,1-DCE concentration (17,000 µg/l) was reported at boring CPT-6, located near the former developer/still source area, at a depth of 73 to 76 feet bgs. The 1,1-DCE concentration at boring CPT-6 decreased to 19 µg/l at a depth of 85 to 88 feet bgs. This sample depth and the lithology correspond to the permeable interval that has been designated as Zone B at the site.

CPT-2/W9: Downgradient boring CPT-2, located near extraction well W9, had a 1,1-DCE concentration of 9,000 µg/l at a depth of 69 to 72 feet bgs. The well screen for nearby extraction well W9 extends from 30 to 60 feet bgs. The highest historical 1,1-DCE concentration at well W9 was 56,000 µg/l in November 1991, before groundwater extraction began in 1996. At the time of the CPT investigation, the 1,1-DCE concentration in well W9 was 5,600 µg/l.

CPT-8: A 1,1-DCE concentration of 6,000 µg/l was reported at boring CPT-8, located downgradient of the former utility tunnel, at a depth of 62 to 65 feet bgs. The deepest sample collected from boring CPT-8 (77 to 80 feet bgs) had a 1,1-DCE concentration of 3,300 µg/l. A deeper more permeable unit indicative of Zone B was not encountered in CPT-8, which was advanced to 90 feet bgs.

Table 1 summarizes the groundwater analytical results and Figures 3, 4, and 5 show the results on geologic cross sections that also display the lithologic logs from the CPTs. Figures 6 and 7 show the 1,1-DCE and TCE isoconcentration contours in plan view. These contours are based on the highest concentration detected at each CPT, regardless of depth. Historical groundwater analytical results from groundwater monitoring wells and deep SVE wells (Z4 wells) are included in Attachment D with graphs for water levels and VOC concentrations over time for selected wells.

Deep Soil Boring Investigation

The highest TCE concentration (690 micrograms per kilogram [µg/kg]) was reported at boring DB-4, located off site near monitoring well W20, at a depth of 70 feet bgs. Based on lithology, W20 is considered to be completed within the permeable unit designated as Zone B. TCE concentrations were lower (maximum of 260 µg/kg) at borings DB-5 and DB-6, located between boring DB-4 and the site and upgradient of DB-4, respectively. VOCs detected on the West Coast Sand & Gravel property were well below what would have been expected if contamination had migrated from the vicinity of onsite well W3, and/or other onsite sources, to offsite well W20. The highest TCE concentration reported on site was 360 µg/kg at boring DB-1 at a depth of 65 feet bgs. The highest TCE concentration reported below 80 feet bgs on site was 3.0 µg/kg.

Similar to the deep groundwater investigation, the highest 1,1-DCE concentration (1,600 µg/kg) was reported at boring DB-3, located on site near CPT-6 in the former developer/still source area, at a depth of 75 feet bgs. The lithology at this depth consists of relatively fine-grained silts and clays that comprise the interval between Zone A and Zone B. The 1,1-DCE concentration decreased to 9.2 µg/kg at a depth of 80 feet bgs in boring DB-3. 1,1-DCE was not detected below 80 feet bgs at the three borings installed on site. Table 2 summarizes the soil analytical results and Figures 3, 4, and 5 show the results on the cross sections.

Conclusions

The groundwater investigation results indicate the following:

1. The highest VOC concentrations in groundwater were detected in lower permeability soil between Zones A and B, at depths below the extraction

well screen intervals and above the more permeable interval designated as Zone B.

2. The groundwater extraction system removed VOC mass from the higher permeability soil in Zone A, but was unable to remove the residual mass located in the lower permeability soil below the extraction well screens.

3. The next permeable unit beneath Zone A (i.e., Zone B) on site did not appear to be appreciably impacted. This was consistent with the assumption that Zone A contaminants were getting into Zone B as they migrated downgradient of the site.

4. The deep soil boring investigation did not identify a VOC migration pathway from the vicinity of onsite well W3, and/or other onsite sources, to W20.

Northrop Grumman is currently working with USEPA to update the conceptual site model (CSM) for the site. The data presented in this memorandum have been included in the CSM and will be used to evaluate the presence of additional data gaps.

The existing groundwater extraction wells were not yielding groundwater at the time of the investigation, so deeper wells installed in the lower permeability interval below the existing wells were not expected to produce appreciable quantities of groundwater. Groundwater extraction was not considered a viable remedial technology for residual mass in the lower permeability saturated soil. Therefore, permanent deeper wells were not installed.

Alternative remedial actions to enhance the existing onsite pump-and-treat system were considered but not implemented after this investigation. This was decided because the RWQCB informed Northrop Grumman in February 2003 that it intended to require Northrop Grumman to implement an offsite containment remedy downgradient of the site to address the Benchmark contamination. Northrop Grumman subsequently redirected its remedial efforts to prepare for installation of a downgradient extraction system approximately 600 feet north of the site, along Valley Boulevard. The objective of the Valley Boulevard extraction system was to remediate impacted groundwater downgradient of the site, where it had migrated into the deeper more permeable sand units (Zone B). These sand units were anticipated to be capable of sustaining long-term extraction by a pump-and-treat containment system.

Northrop Grumman is currently working with USEPA to propose locations for additional wells to monitor the impacted interval identified in this memorandum.

Report Submittal History

Northrop Grumman mentioned the deep source area investigation in its May 2003 semiannual groundwater monitoring report to the RWQCB. Certain of the CPT and DB data were also shown on cross sections included in various reports submitted to the RWQCB from June 2005 to June 2007. The data provided in this memorandum were also presented to USEPA and Department of Toxic Substances Control (DTSC) in a meeting on 8 December 2011. Northrop Grumman initiated that meeting to provide a presentation of the historical environmental investigation and remedial activities conducted at the site. The data were subsequently provided to DTSC in a memorandum dated 20 January 2012 and to USEPA electronically in an email dated 17 February 2012.

As requested by USEPA in an email dated 6 March 2012, following is a list of the reports submitted by Northrop Grumman regarding the former TRW Benchmark site since the data included in this memorandum were collected. We note below where the CPT and DB data are mentioned in the referenced report.

Report Date	Report Title
6 June 2003	Annual Groundwater Monitoring and Remediation Status Report, December 2002
21 November 2003	Groundwater Monitoring Report, May 2003 Semiannual Event **Note**: Data were not included in this report, but the report stated that a groundwater investigation using a cone penetration test (CPT) rig had been conducted and that the data would be used to evaluate and develop potential future remediation strategies for the site.
April 2004	Annual Groundwater Monitoring and Remediation Status Report, November 2003
September 2004	Groundwater Monitoring Report, May 2004 Semiannual Event
22 March 2005	Annual Groundwater Monitoring and Remediation Status Report, November 2004
1 June 2005	Remedial Action Plan for Valley Boulevard Groundwater Remediation **Note**: Borings CPT-1 and DB-4 are presented on Figure 2-3 cross section.
13 September 2005	Groundwater Monitoring Report, May 2005 Semiannual Event
7 March 2006	Downgradient Groundwater Extraction System **Note**: Boring DB-4 is presented on Figure 3 cross section.
5 April 2006	Annual Groundwater Monitoring and Remediation Status Report, November 2005
26 September 2006	Groundwater Monitoring Report, June 2006 Semiannual Event
30 March 2007	Groundwater Monitoring Report, December 2006 Semiannual Event
11 June 2007	Groundwater Extraction Well Installation Report **Note**: Boring DB-4 is presented on Figure 4 cross section.
7 September 2007	Groundwater Monitoring Report, June 2007 Semiannual Event
21 February 2008	Groundwater Monitoring Report, November 2007 Semiannual Event
12 August 2008	Groundwater Monitoring Report, May 2008 Semiannual Event

Report Date	Report Title
23 March 2009	Groundwater Monitoring Report, November 2008 Semiannual Event
September 2009	Groundwater Monitoring Report, June 2009 Semiannual Event
31 March 2010	Groundwater Monitoring Report, December 2009 Semiannual Event
7 September 2010	Groundwater Monitoring Report, June 2010 Semiannual Event
7 March 2011	Groundwater Monitoring Report, December 2010 Semiannual Event
15 September 2011	Groundwater Monitoring Report, June 2011 Semiannual Event
16 November 2011	Draft Remedial Design Investigation Work Plan
16 November 2011	Draft Remedial Design/Remedial Action Work Plan

Attachments

Table 1 – Groundwater Analytical Results
Table 2 – Soil Analytical Results
Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – 1,1-DCE Concentrations in 2002 in Groundwater A-A′
Figure 4 – 1,1-DCE Concentrations in 2002 in Groundwater B-B′
Figure 5 – 1,1-DCE Concentrations in 2002 in Groundwater C-C′
Figure 6 – 1,1-DCE Isoconcentration Contour Map December 2002
Figure 7 – TCE Isoconcentration Contour Map December 2002
Attachment A – Boring Logs
Attachment B – Field Investigation and QA/QC Procedures
Attachment C – Laboratory Analytical Reports and Chain-of-Custody Forms
Attachment D – Historical Groundwater Analytical Results
Attachment E – Waste Manifests

TABLE 1

GROUNDWATER ANALYTICAL RESULTS
VERTICAL DELINEATION INVESTIGATION
FORMER TRW BENCHMARK SITE

Location	Sample Interval (feet bgs)	Sample Date	Volatile Organic Compounds (µg/l) [a]																				
			1,1,1-TCA	1,1,2-TCA	PCE	TCE	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Methylene Chloride	Vinyl Chloride	Carbon Tetrachloride	Trichloro-fluoromethane	Trichloro-trifluoroethane	Acetone	2-Butanone	Bromoform	Chloroform	Benzene	Total Xylenes	1,4-Dioxane	Total VOCs
CPT-1	55 - 58	12/2/02	22	11	100	7,400	100	2.0	3,100	30	1.7	ND<0.5[b]	0.6	0.6	0.8	1.8	ND<20	ND<10	ND<0.5	6.6	6.4	ND<1.5	640	10,784
(near W3)	63 - 66	12/2/02	2.0	ND<0.5	35	130	9.7	ND<0.5	84	8.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20	ND<10	ND<0.5	0.6	ND<0.5	ND<1.5	ND<100	270
	72 - 75	12/2/02	10	1.7	74	260	48	0.7	330	24	0.9	ND<0.5	ND<0.5	ND<0.5	0.6	0.8	ND<20	ND<10	ND<0.5	1.1	ND<0.5	ND<1.5	290	752
CPT-2	52 - 55	12/2/02	6.3	2.2	57	410	74	1.2	580	15	0.6	ND<0.5	ND<0.5	ND<0.5	0.6	0.7	ND<20	ND<10	ND<0.5	2.1	ND<0.5	ND<1.5	ND<100	1,150
(near W9)	60 - 63	12/2/02	4.7	2.2	30	310	52	1.0	510	12	ND<0.5	0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20	ND<10	ND<0.5	1.4	ND<0.5	ND<1.5	ND<100	924
	69 - 72	12/2/02	1.1	32	100	3,800	350	24	9,000	14	1.8	12	0.9	3.3	1.7	4.0	ND<20	ND<10	ND<0.5	28	4.2	ND<1.5	ND<500	13,377
	75 - 78	12/2/02	46	35	100	1,000	440	11	5,500	30	2.1	8.3	1.3	1.3	3.1	5.0	ND<20	ND<10	ND<0.5	13	1.9	3.1	530	7,201
	82 - 85	12/9/02	ND<2.5	ND<2.5	ND<2.5	24	ND<2.5	ND<2.5	33	ND<2.5	ND<2.5	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<25	ND<250	ND<25	ND<2.5	ND<2.5	ND<2.5	ND<7.5	ND<500	57
	91 - 94	12/9/02	ND<2.5	ND<2.5	13	210	22	ND<2.5	450	4.0	ND<2.5	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<25	ND<250	ND<25	ND<2.5	ND<2.5	ND<2.5	ND<7.5	ND<500	699
CPT-3	52 - 55	12/9/02	14	8.8	43	240	130	2.4	2,200	12	1.2	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5.0	ND<0.5	7.4	1.0	ND<1.5	500	3,160
	64 - 67	12/9/02	ND<2.5	22	34	730	220	9.8	5,200	16	ND<2.5	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<25	ND<250	ND<2.5	ND<2.5	12	ND<2.5	ND<7.5	660	6,904
	70 - 73	12/9/02	ND<2.5	ND<2.5	54	150	81	ND<2.5	990	14	ND<2.5	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<25	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<7.5	ND<500	1,289
	79 - 82	12/9/02	ND<0.5	ND<0.5	1.3	120	4.5	ND<0.5	210	ND<0.5	ND<0.5	ND<50	ND<0.5	ND<0.5	3.6	ND<5	ND<50	ND<5.0	ND<0.5	1.3	ND<0.5	ND<1.5	ND<100	341
CPT-4	52 - 55	12/3/02	4.7	1.2	45	320	32	ND<0.5	42	11	0.6	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<20	ND<10	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	457
(near W8)	65 - 68	12/3/02	ND<25	ND<25	42	190	110	ND<25	2,100	ND<25	ND<25	ND<25	ND<25	ND<25	ND<25	ND<25	ND<1,000	ND<500	ND<25	ND<25	ND<25	ND<75	ND<100	2,442
	71 - 74	12/3/02	0.9	1.3	14	15	7.6	1.4	36	4.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.9	ND<0.5	170	13	ND<0.5	0.8	ND<0.5	ND<1.5	NA[c]	265
	78 - 81	12/3/02	ND<0.5	ND<0.5	4.2	58	5.9	ND<0.5	140	0.9	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.4	0.5	44	ND<10	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	257
CPT-5	55 - 58	12/10/02	ND<0.5	ND<0.5	37	12	0.9	ND<0.5	2.5	8.7	ND<0.5	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	61
	63 - 66	12/10/02	ND<0.5	ND<0.5	23	19	3.7	ND<0.5	17	6.7	ND<0.5	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	69
	73 - 76	12/10/02	17	0.6	84	40	19	ND<0.5	140	18	0.6	ND<50	ND<0.5	ND<0.5	1.1	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<1.5	200	320
	79 - 82	12/10/02	2.0	ND<1.0	25	62	6.5	ND<1.0	120	4.9	ND<1.0	ND<100	ND<1.0	ND<1.0	4.4	ND<10	ND<100	ND<10	ND<1.0	ND<1.0	ND<1.0	ND<3.0	ND<200	225
CPT-6 (upgradient of CPT-7)	52 - 55	12/10/02	1.3	ND<0.5	16	380	37	ND<0.5	680	5.0	ND<0.5	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	1,119
	62 - 65	12/10/02	ND<10	ND<10	47	430	200	ND<10	1,500	27	ND<10	ND<1,000	ND<10	ND<10	ND<10	ND<100	ND<1,000	ND<100	ND<10	ND<10	ND<10	ND<30	ND<2,000	2,204
	73 - 76	12/10/02	ND<10	16	95	980	330	ND<10	17,000	32	ND<10	ND<1,000	ND<10	ND<10	ND<10	ND<100	ND<1,000	ND<100	ND<10	ND<10	ND<10	ND<30	ND<2,000	18,453
	78 - 81	12/10/02	ND<5.0	15	42	530	210	ND<5.0	6,500	21	ND<5.0	ND<500	ND<5.0	ND<5.0	ND<5.0	ND<50	ND<500	ND<50	ND<5.0	10	ND<5.0	ND<15	ND<1,000	7,328
	85 - 88	12/10/02	ND<0.5	ND<0.5	ND<0.5	7.6	ND<0.5	ND<0.5	19	ND<0.5	ND<0.5	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<5	ND<50	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<100	27
CPT-7 (downgradient of dev/still)	50 - 53	12/3/02	ND<25	ND<25	60	1,600	660	ND<25	2,200	30	ND<25	ND<25	ND<25	ND<25	ND<25	ND<25	ND<1,000	ND<500	ND<25	ND<25	ND<25	ND<75	ND<2,000	4,550
	60 - 63	12/3/02	3.2	ND<2.5	64	510	69	ND<2.5	550	16	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<100	ND<500	ND<2.5	ND<2.5	ND<2.5	ND<7.5	ND<200	1,212
	70 - 73	12/3/02	ND<25	26	100	870	330	ND<25	8,500	28	ND<25	28	ND<25	ND<25	ND<25	ND<25	ND<1,000	ND<500	ND<25	ND<25	ND<25	ND<75	ND<5,000	9,882
	77 - 80	12/3/02	ND<0.5	ND<0.5	0.8	39	6.1	ND<0.5	54	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.0	ND<0.5	64	ND<10	ND<0.5	0.8	ND<0.5	ND<1.5	ND<100	166
CPT-8	52 - 55	12/9/02	67	15	57	26	58	ND<13	790	ND<13	ND<13	ND<1,250	ND<13	ND<13	ND<13	ND<125	ND<1,250	ND<125	ND<13	ND<13	ND<13	ND<38	ND<2,500	1,013
	62 - 65	12/9/02	12	40	96	440	480	ND<2.5	6,000	42	5.5	ND<250	ND<2.5	ND<2.5	ND<2.5	ND<25	ND<250	ND<25	ND<2.5	10	ND<2.5	ND<7.5	3,500	7,126
	70 - 73	12/9/02	ND<10	34	62	500	300	ND<10	5,700	33	ND<10	ND<1,000	ND<10	ND<10	ND<10	ND<100	ND<1,000	ND<100	ND<10	ND<10	ND<10	ND<30	ND<2,000	6,629
	77 - 80	12/9/02	ND<10	ND<10	120	420	64	ND<10	3,300	ND<10	ND<10	ND<1,000	ND<10	ND<10	ND<10	ND<100	ND<1,000	ND<100	ND<10	ND<10	ND<10	ND<30	ND<2,000	3,904

(a) Volatile organic compounds (VOCs) analyzed by EPA Method 8260B, reported in micrograms per liter (µg/l).
(b) Not detected above the detection limit listed.
(c) Not analyzed.

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER TRW BENCHMARK SITE

Boring	Depth (feet)	Sample Date	Volatile Organic Compounds (µg/kg) [a]																			
			1,1,1-TCA	1,1,2-TCA	PCE	TCE	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Methylene Chloride	Vinyl Chloride	Carbon Tetrachloride	Trichloro-fluoromethane	1,1,2-Trichloro-trifluoroethane	Acetone	2-Butanone	Bromoform	Chloroform	Benzene	Total Xylenes	Total VOCs
DB-1	40	7/30/04	ND<4.9[b]	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<9.8	ND<4.9	ND<9.8	ND<4.9	ND<24	ND<24	ND<4.9	ND<4.9	ND<4.9	ND<4.9	0
	50	7/30/04	ND<4.3	ND<4.3	ND<4.3	12	2.7 J[c][d]	ND<4.3	49	ND<4.3	ND<4.3	ND<4.3	ND<8.6	ND<4.3	ND<8.6	ND<4.3	ND<22	ND<22	ND<4.3	ND<4.3	ND<4.3	ND<4.3	61
	53	7/30/04	ND<210	ND<210	ND<210	210	ND<210	ND<210	400	ND<210	ND<210	ND<210	ND<420	ND<210	ND<210	ND<210	ND<1,000	ND<1,000	ND<210	ND<210	ND<210	ND<210	610
	60	7/30/04	ND<220	ND<220	ND<220	ND<220	ND<220	ND<220	320	ND<220	ND<220	ND<220	ND<430	ND<220	ND<220	ND<220	ND<1,100	ND<1,100	ND<220	ND<220	ND<220	ND<220	320
	65	7/30/04	ND<220	ND<220	ND<220	360	ND<220	ND<220	1,100	ND<220	ND<220	ND<220	ND<440	ND<220	ND<220	ND<220	ND<1,100	ND<1,100	ND<220	ND<220	ND<220	ND<220	1,460
	70	7/30/04	ND<200	ND<200	ND<200	150 J[d]	ND<200	ND<200	380	ND<200	ND<200	ND<200	ND<400	ND<200	ND<200	ND<200	ND<1,000	ND<1,000	ND<200	ND<200	ND<200	ND<200	380
	75	7/30/04	ND<200	ND<200	ND<200	ND<200	ND<200	ND<200	390	ND<200	ND<200	ND<200	ND<390	ND<200	ND<200	ND<200	ND<980	ND<980	ND<200	ND<200	ND<200	ND<200	390
	80	7/30/04	ND<4.4	ND<4.4	ND<4.4	11	1.0 J[d]	ND<4.4	37	ND<4.4	ND<4.4	ND<4.4	ND<8.8	ND<4.4	ND<8.8	ND<4.4	ND<22	ND<22	ND<4.4	ND<4.4	ND<4.4	ND<4.4	48
	85	7/30/04	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<8.1	ND<4	ND<8.1	ND<4	ND<20	ND<20	ND<4	ND<4	ND<4	ND<4	0
	90	7/30/04	ND<4.2	ND<4.2	2.1 J	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<8.3	ND<4.2	ND<8.3	ND<4.2	ND<21	ND<21	ND<4.2	ND<4.2	ND<4.2	ND<4.2	0
	95	7/30/04	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<8.3	ND<4.2	ND<8.3	ND<4.2	ND<21	ND<21	ND<4.2	ND<4.2	ND<4.2	ND<4.2	0
	100	7/30/04	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<7.6	ND<3.8	ND<7.6	ND<3.8	ND<19	ND<19	ND<3.8	ND<3.8	ND<3.8	ND<3.8	0
	105	7/30/04	ND<4.4	ND<4.4	2.3 J[d]	3.0 J[d]	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<8.7	ND<4.4	ND<8.7	ND<4.4	19 J	ND<22	ND<4.4	ND<4.4	ND<4.4	ND<4.4	0
DB-2	40	7/30/04	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<5.3	ND<11	ND<5.3	ND<11	ND<5.3	ND<26	ND<26	ND<5.3	ND<5.3	ND<5.3	ND<5.3	0
	50	7/30/04	ND<3.8	ND<3.8	ND<3.8	3.3 J[d]	11	ND<3.8	22	ND<3.8	ND<3.8	ND<3.8	ND<7.6	ND<3.8	ND<7.6	ND<3.8	ND<19	ND<19	ND<3.8	ND<3.8	ND<3.8	ND<3.8	33
	60	7/30/04	ND<4.6	ND<4.6	9.2	44	4.4 J[d]	ND<4.6	11	ND<4.6	ND<4.6	ND<4.6	ND<9.2	ND<4.6	ND<9.2	ND<4.6	ND<23	ND<23	ND<4.6	ND<4.6	ND<4.6	ND<4.6	64
	65	7/30/04	ND<4.8	ND<4.8	ND<4.8	3.0 J[d]	3.5 J[d]	ND<4.8	6.4	ND<4.8	ND<4.8	ND<4.8	ND<9.7	ND<4.8	ND<9.7	ND<4.8	ND<24	ND<24	ND<4.8	ND<4.8	ND<4.8	ND<4.8	6
	70	7/30/04	ND<3.9	ND<3.9	4.6[d]	5.2[d]	1.2 J[d]	ND<3.9	31[d]	ND<3.9	ND<3.9	ND<3.9	ND<7.8	ND<3.9	ND<7.8	ND<3.9	ND<20	ND<20	ND<3.9	ND<3.9	ND<3.9	ND<3.9	0
	75	7/30/04	ND<4	ND<4	2.8 J[d]	13	2.8 J[d]	ND<4	57	ND<4	ND<4	ND<4	ND<8	ND<4	ND<8	ND<4	ND<20	ND<20	ND<4	ND<4	ND<4	ND<4	70
	80	7/30/04	ND<3.9	ND<3.9	ND<3.9	4.4[d]	ND<3.9	ND<3.9	7.6[d]	ND<3.9	ND<3.9	ND<3.9	ND<7.8	ND<3.9	ND<7.8	ND<3.9	ND<20	ND<20	ND<3.9	ND<3.9	ND<3.9	ND<3.9	0
	85	7/30/04	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<8.6	ND<4.3	ND<8.6	ND<4.3	ND<22	ND<22	ND<4.3	ND<4.3	ND<4.3	ND<4.3	0
	90	7/30/04	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<8.8	ND<4.4	ND<8.8	ND<4.4	ND<22	ND<22	ND<4.4	ND<4.4	ND<4.4	ND<4.4	0
	95	7/30/04	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<8.1	ND<4	ND<8.1	ND<4	ND<20	ND<20	ND<4	ND<4	ND<4	ND<4	0
	100	7/30/04	ND<4.6	ND<4.6	3.6 J[d]	2.5 J[d]	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<9.3	ND<4.6	ND<9.3	ND<4.6	ND<23	ND<23	ND<4.6	ND<4.6	ND<4.6	ND<4.6	0
	105	7/30/04	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<4.9	ND<9.8	ND<4.9	ND<9.8	ND<4.9	ND<24	ND<24	ND<4.9	ND<4.9	ND<4.9	ND<4.9	0
DB-3	40	7/31/04	ND<4.6	ND<4.6	ND<4.6	2.1 J[d]	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<4.6	ND<9.2	ND<4.6	ND<9.2	ND<4.6	15 J[d]	ND<23	ND<4.6	ND<4.6	ND<4.6	ND<4.6	0
	50	7/31/04	ND<4.1	ND<4.1	3.4 J[d]	72	26	ND<4.1	70	ND<4.1	ND<4.1	ND<4.1	ND<8.2	ND<4.1	ND<8.2	ND<4.1	ND<20	ND<20	ND<4.1	ND<4.1	ND<4.1	ND<4.1	168
	60	7/31/04	ND<220	ND<220	ND<220	ND<220	ND<220	ND<220	460	ND<220	ND<220	ND<220	ND<430	ND<220	ND<220	ND<220	ND<1,100	ND<1,100	ND<220	ND<220	ND<220	ND<220	460
	65	7/31/04	ND<210	ND<210	ND<210	ND<210	ND<210	ND<210	180 J[d]	ND<210	ND<210	ND<210	ND<420	ND<210	ND<210	ND<210	ND<1,000	ND<1,000	ND<210	ND<210	ND<210	ND<210	0
	70	7/31/04	ND<220	ND<220	ND<220	120 J[d]	ND<220	ND<220	1,300[d]	ND<220	ND<220	ND<220	ND<430	ND<220	ND<220	ND<220	ND<1,100	ND<1,100	ND<220	ND<220	ND<220	ND<220	1,300
	75	7/31/04	ND<220	ND<220	ND<220	160 J[d]	ND<220	ND<220	1,600	ND<220	ND<220	ND<220	ND<450	ND<220	ND<220	ND<220	ND<1,100	ND<1,100	ND<220	ND<220	ND<220	ND<220	1,600
	80	7/31/04	ND<4	ND<4	ND<4	5.7[d]	ND<4	ND<4	9.2[d]	ND<4	ND<4	ND<4	ND<8	ND<4	ND<8	ND<4	ND<20	ND<20	ND<4	ND<4	ND<4	ND<4	0
	85	7/31/04	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<3.9	ND<7.8	ND<3.9	ND<7.8	ND<3.9	ND<20	ND<20	ND<3.9	ND<3.9	ND<3.9	ND<3.9	0
	90	7/31/04	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<4.2	ND<8.3	ND<4.2	ND<8.3	ND<4.2	ND<21	ND<21	ND<4.2	ND<4.2	ND<4.2	ND<4.2	0

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER TRW BENCHMARK SITE

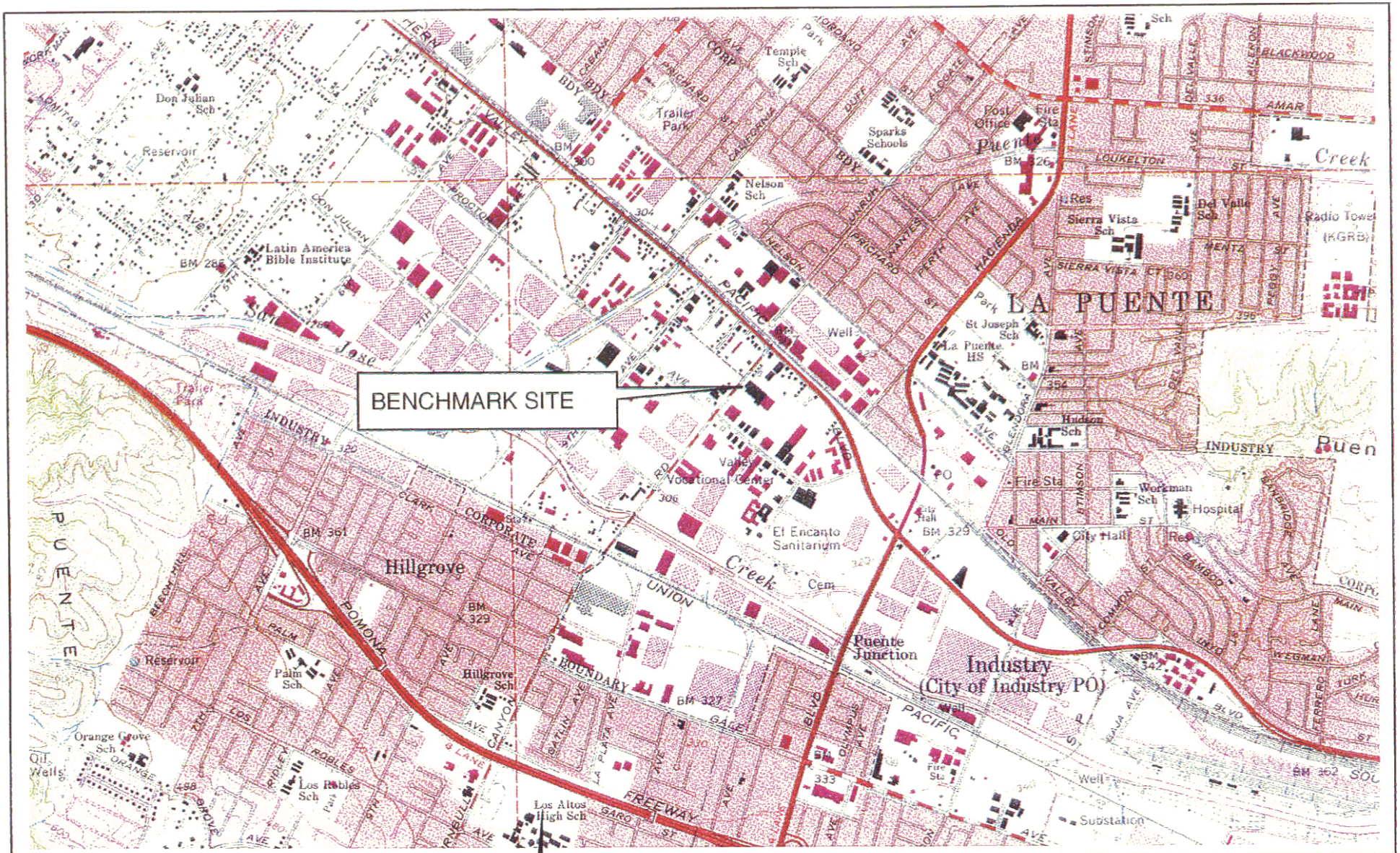
Boring	Depth (feet)	Sample Date	Volatile Organic Compounds (µg/kg) [a]																			
			1,1,1-TCA	1,1,2-TCA	PCE	TCE	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Methylene Chloride	Vinyl Chloride	Carbon Tetrachloride	Trichloro-fluoromethane	1,1,2-Trichloro-trifluoroethane	Acetone	2-Butanone	Bromoform	Chloroform	Benzene	Total Xylenes	Total VOCs
DB-3	95	7/31/04	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<4.3	ND<8.6	ND<4.3	ND<8.6	ND<4.3	ND<22	ND<22	ND<4.3	ND<4.3	ND<4.3	ND<4.3	0
(cont.)	100	7/31/04	ND<3.8	ND<3.8	ND<3.8	ND<3.8	56	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<3.8	ND<7.7	ND<3.8	ND<7.7	ND<3.8	ND<19	ND<19	ND<3.8	ND<3.8	ND<3.8	ND<3.8	56
	105	7/31/04	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<8	ND<4	ND<8	ND<4	ND<20	ND<20	ND<4	ND<4	ND<4	ND<4	0
DB-4	30	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	40	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	50	10/1/04	ND<1	ND<3	3	2	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	5
	60	10/1/04	ND<1	ND<3	8	36	7	ND<1	51	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	105
	65	10/1/04	ND<1	ND<3	7	110	10	ND<1	79	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	209
	70	10/1/04	ND<1	ND<3	13	690	30	2	340	6	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	1	ND<2	1,082
	75	10/1/04	ND<1	ND<3	5	450	15	ND<1	120	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	593
	80	10/1/04	ND<1	ND<3	2	98	6	ND<1	47	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	153
	85	10/1/04	ND<1	ND<3	ND<1	2	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	2
	90	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	95	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	100	10/1/04	ND<1	ND<3	ND<1	7	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	7
	105	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
DB-5	30	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	40	10/1/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	50	10/1/04	ND<1	ND<3	3	6	1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	10
	60	10/2/04	ND<1	ND<3	7	49	7	ND<1	83	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	149
	65	10/2/04	ND<1	ND<3	6	260	11	ND<1	110	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	390
	70	10/2/04	ND<1	ND<3	7	170	12	ND<1	140	2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	331
	75	10/2/04	ND<1	ND<3	5	120	8	ND<1	90	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	223
	80	10/2/04	ND<1	ND<3	2	69	5	ND<1	43	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	119
	85	10/2/04	ND<1	ND<3	ND<1	76	3	ND<1	40	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	119
	90	10/2/04	ND<1	ND<3	3	4	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	7
	95	10/2/04	ND<1	ND<3	2	2	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	4
	100	10/2/04	ND<1	ND<3	1	2	ND<1	ND<1	5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	8
	105	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	110	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	115	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
DB-6	30	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	40	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0
	50	10/2/04	ND<1	ND<3	5	6	1	ND<1	5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	17

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER TRW BENCHMARK SITE

Boring	Depth (feet)	Sample Date	Volatile Organic Compounds (µg/kg) [(a)]																			
			1,1,1-TCA	1,1,2-TCA	PCE	TCE	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Methylene Chloride	Vinyl Chloride	Carbon Tetrachloride	Trichloro-fluoromethane	1,1,2-Trichloro-trifluoroethane	Acetone	2-Butanone	Bromoform	Chloroform	Benzene	Total Xylenes	Total VOCs
DB-6	60	10/2/04	ND<1	ND<3	3	17	2	ND<1	14	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	36
(cont.)	65	10/2/04	ND<1	ND<3	3	11	2	ND<1	9	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	25
	70	10/2/04	ND<1	ND<3	8	67	6	ND<1	63	3	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	147
	75	10/2/04	ND<1	ND<3	13	230	22	ND<1	160	5	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	430
	80	10/2/04	ND<1	ND<3	ND<1	65	1	ND<1	29	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	95
	85	10/2/04	ND<1	ND<3	ND<1	4	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	4
	90	10/2/04	ND<1	ND<3	ND<1	25	ND<1	ND<1	13	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	38
	95	10/2/04	ND<1	ND<3	4	3	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	7
	100	10/2/04	ND<1	ND<3	ND<1	2	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	2
	105	10/2/04	ND<1	ND<3	ND<1	ND<1	ND<1	ND<1	ND<5	ND<2	ND<2	ND<50	ND<2	ND<1	ND<1	ND<5	ND<50	ND<10	ND<5	ND<2	ND<1	ND<2	0

(a) Volatile organic compounds (VOCs) analyzed by EPA Method 8260B, reported in micrograms per kilogram (µg/kg).
(b) Not detected above the detection limit listed.
(c) J-flagged result is estimated and detected below the reporting limit.
(d) Results indicated as "estimated" based on data validation.



REFERENCE: USGS 7.5-MINUTE QUADRANGLE BALDWIN PARK, CALIFORNIA DATED 1964, PHOTO REVISED 1981.

REVISION	NO.	BY	DATE	DESCRIPTION
0	0	LH	5-22-96	CLIENT REVIEW

NORTHROP GRUMMAN SYSTEMS CORPORATION

FORMER BENCHMARK TECHNOLOGY FACILITY

SITE LOCATION MAP

PROJECT NO.	DRAWN BY	CHECKED BY:
	S/1640	MT

ART NO. 9602148

FIGURE 1

LEGEND

- TRICHLOROETHENE (TCE) USE/STORAGE AREA
- 1,1,1–TRICHLOROETHANE (TCA) USE/STORAGE AREA
- METHYLENE CHLORIDE USE/STORAGE AREA
- OTHER COMPOUNDS USE/STORAGE AREA
- FORMER CHROME SUMP

- W1 — ZONE A (≤60 FEET) MONITORING WELL
- W18 — ZONE B (~80–115 FEET) MONITORING WELL
- W21 — ZONE C (~150–180 FEET) MONITORING WELL
- Z4–1 — VAPOR EXTRACTION WELL SCREENED BELOW 40 FEET BELOW GRADE
- CPT–3 — CPT BORING INSTALLED IN 2002
- DB–1 — SOIL BORING INSTALLED IN 2004
- CB–1 — SOIL CONFIRMATION BORING INSTALLED IN 1997
- FORMER TRW BENCHMARK SITE BOUNDARY
- A—A' AXIS FOR GEOLOGIC CROSS SECTION

FORMER NELSON STEEL PROPERTY

PEREZ PROPERTY

A&M BUILDING SUPPLY

KOLL COMPANY

WEST COAST SAND & GRAVEL

TURNBULL CANYON ROAD

FORMER DEVELOPER/STILL

FORMER UTILITY TUNNEL

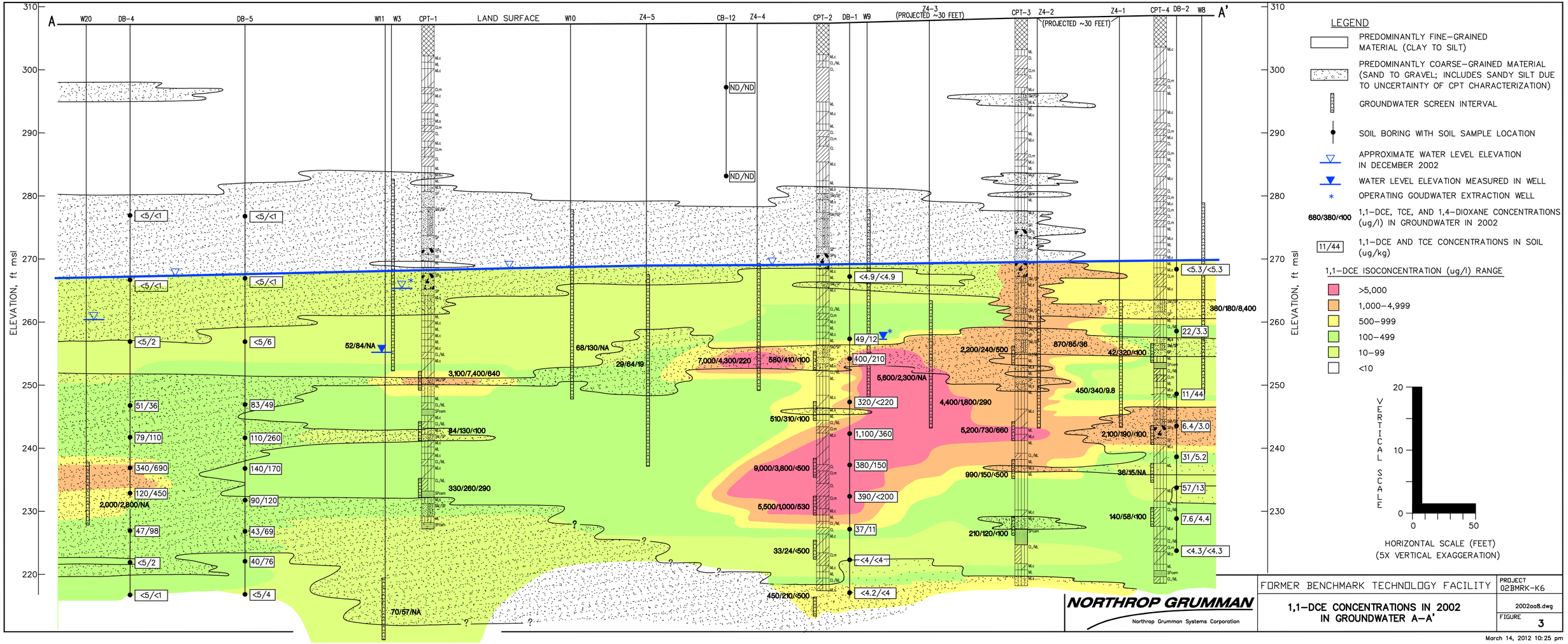
FORMER MAIN MANUFACTURING BUILDING

A W20 DB–4 DB–5 W10 Z4–5 W3 CPT–1 W11 CB–12 Z4–4 CPT–2 B' DB–1 W9 CPT–3 Z4–3 CB–11 Z4–2 CB–10 CPT–4 W8 Z4–1 CB–9 DB–2 A' W18 W7 DB–6 C CPT–5 CB–5 CPT–7 CB–8 CB–4 CPT–8 C' DB–3 Z4–6 CPT–6 W1 CB–3 CB–2 CB–6 CB–7 CB–1 W2 W5 W6 W19 W4 B

SCALE
0 100 200

NORTHROP GRUMMAN Northrop Grumman Systems Corporation	FORMER TRW BENCHMARK SITE	PROJECT 02BMRK–K6
	SITE PLAN	siteplan15.dwg
		FIGURE 2

March 12, 2012 6:35 pm



NORTHROP GRUMMAN
Northrop Grumman Systems Corporation

FORMER BENCHMARK TECHNOLOGY FACILITY

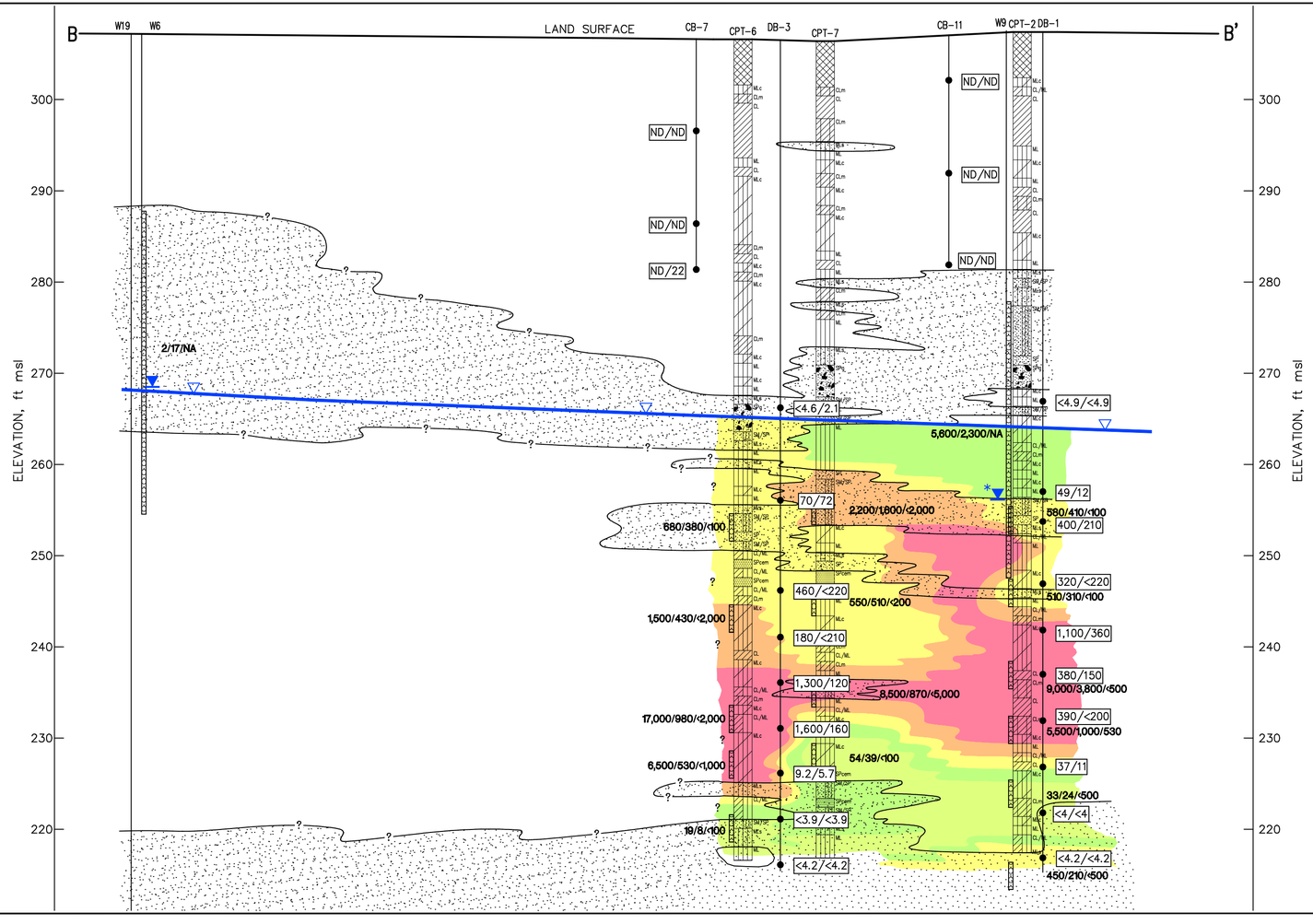
1,1-DCE CONCENTRATIONS IN 2002 IN GROUNDWATER A-A'

PROJECT 02BMRK-K6

2002a08.dwg

FIGURE 3

March 14, 2012 10:25 pm



LEGEND

- PREDOMINANTLY FINE-GRAINED MATERIAL (CLAY TO SILT)
- PREDOMINANTLY COARSE-GRAINED MATERIAL (SAND TO GRAVEL; INCLUDES SANDY SILT DUE TO UNCERTAINTY OF CPT CHARACTERIZATION)
- GROUNDWATER SCREEN INTERVAL
- SOIL BORING WITH SOIL SAMPLE LOCATION
- APPROXIMATE WATER LEVEL ELEVATION IN DECEMBER 2002
- WATER LEVEL ELEVATION MEASURED IN WELL
- OPERATING GOUDWATER EXTRACTION WELL
- **680/380/<100** 1,1-DCE, TCE, AND 1,4-DIOXANE CONCENTRATIONS (ug/l) IN GROUNDWATER IN 2002
- 49/12 1,1-DCE AND TCE CONCENTRATIONS IN SOIL (ug/kg)

1,1-DCE ISOCONCENTRATION (ug/l) RANGE

- >5,000
- 1,000-4,999
- 500-999
- 100-499
- 10-99
- <10

VERTICAL SCALE: 20, 10, 0

HORIZONTAL SCALE: 0, 50

HORIZONTAL SCALE (FEET)
(5X VERTICAL EXAGGERATION)

NORTHROP GRUMMAN
Northrop Grumman Systems Corporation

FORMER BENCHMARK TECHNOLOGY FACILITY

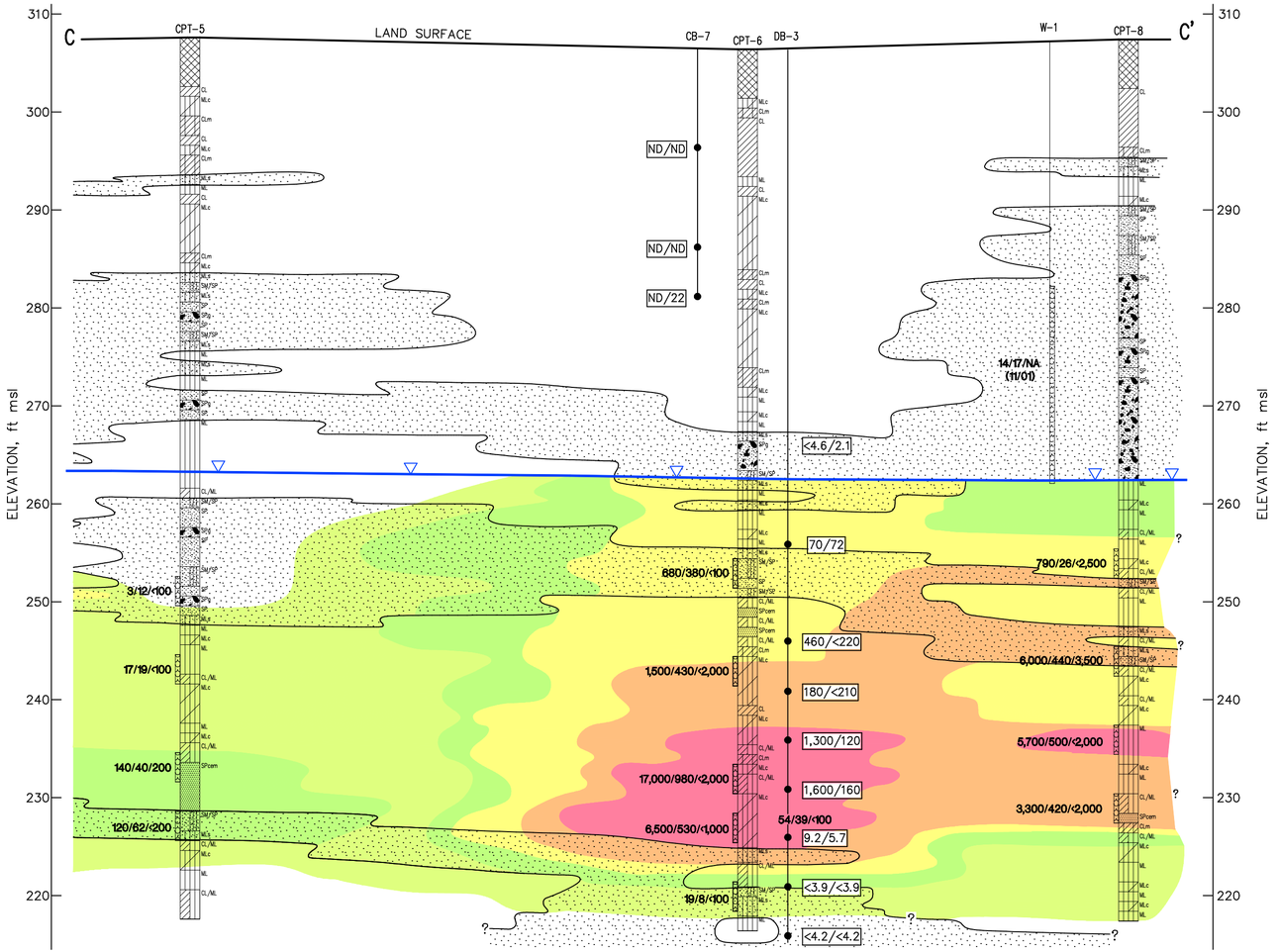
1,1-DCE CONCENTRATIONS IN 2002 IN GROUNDWATER B-B'

PROJECT TASK B6

2002bb8.dwg

FIGURE 4

March 14, 2012 10:48 pm



LEGEND

- PREDOMINANTLY FINE-GRAINED MATERIAL (CLAY TO SILT)
- PREDOMINANTLY COARSE-GRAINED MATERIAL (SAND TO GRAVEL; INCLUDES SANDY SILT DUE TO UNCERTAINTY OF CPT CHARACTERIZATION)
- GROUNDWATER SCREEN INTERVAL
- SOIL BORING WITH SOIL SAMPLE LOCATION
- APPROXIMATE WATER LEVEL ELEVATION IN DECEMBER 2002
- **680/380/<100** 1,1-DCE, TCE, AND 1,4-DIOXANE CONCENTRATIONS (ug/l) IN GROUNDWATER IN 2002
- 49/12 1,1-DCE AND TCE CONCENTRATIONS IN SOIL (ug/kg)

1,1-DCE ISOCONCENTRATION (ug/l) RANGE

- >5,000
- 1,000-4,999
- 500-999
- 100-499
- 10-99
- <10

VERTICAL SCALE
20
10
0
0
50
HORIZONTAL SCALE (FEET)
(5X VERTICAL EXAGGERATION)

NORTHROP GRUMMAN
Northrop Grumman Systems Corporation

FORMER BENCHMARK TECHNOLOGY FACILITY

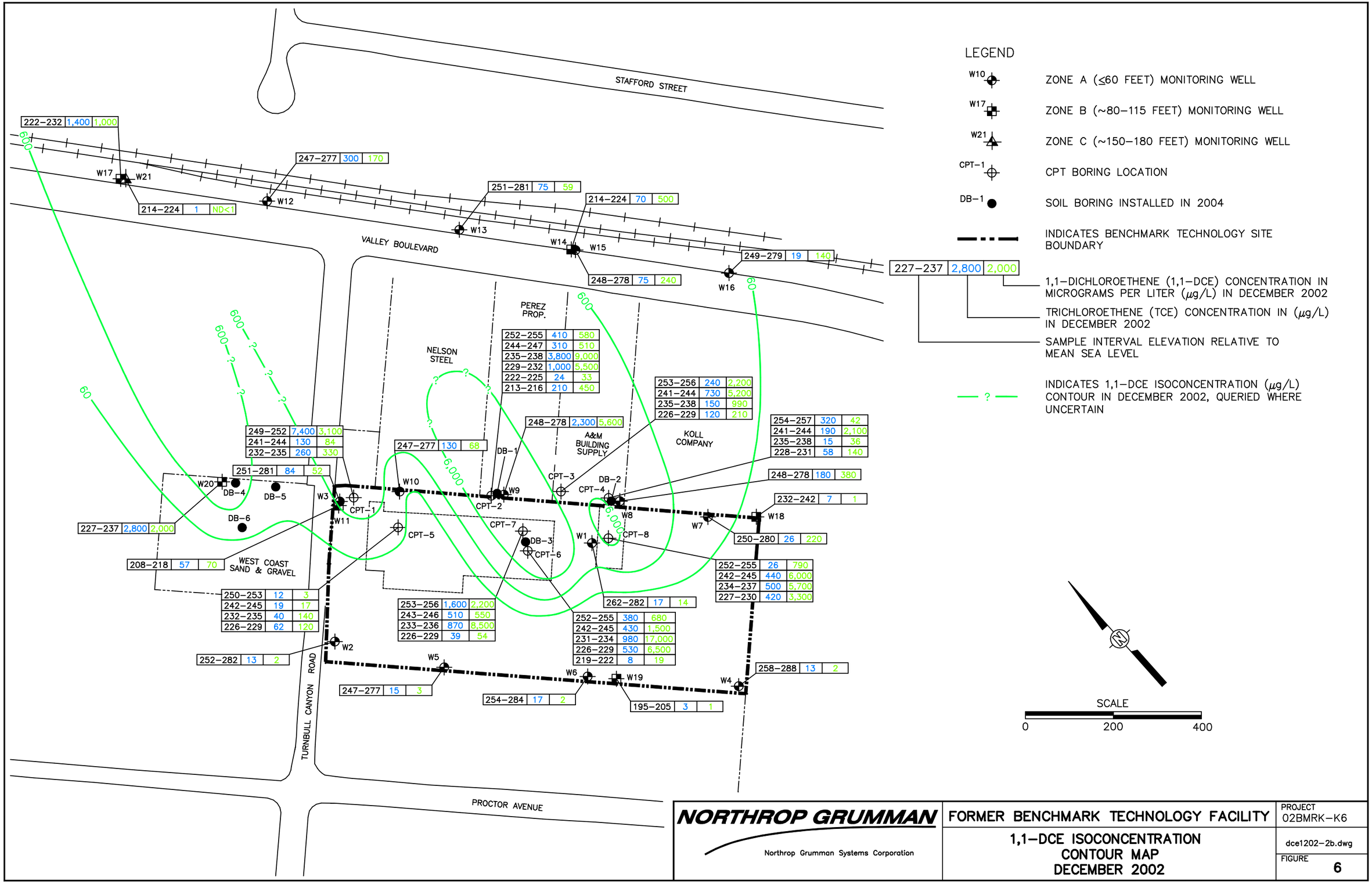
PROJECT TASK B6

1,1-DCE CONCENTRATIONS IN 2002 IN GROUNDWATER C-C'

abc-6b.dwg

FIGURE 5

March 14, 2012 11:17 pm



NORTHROP GRUMMAN

Northrop Grumman Systems Corporation

FORMER BENCHMARK TECHNOLOGY FACILITY

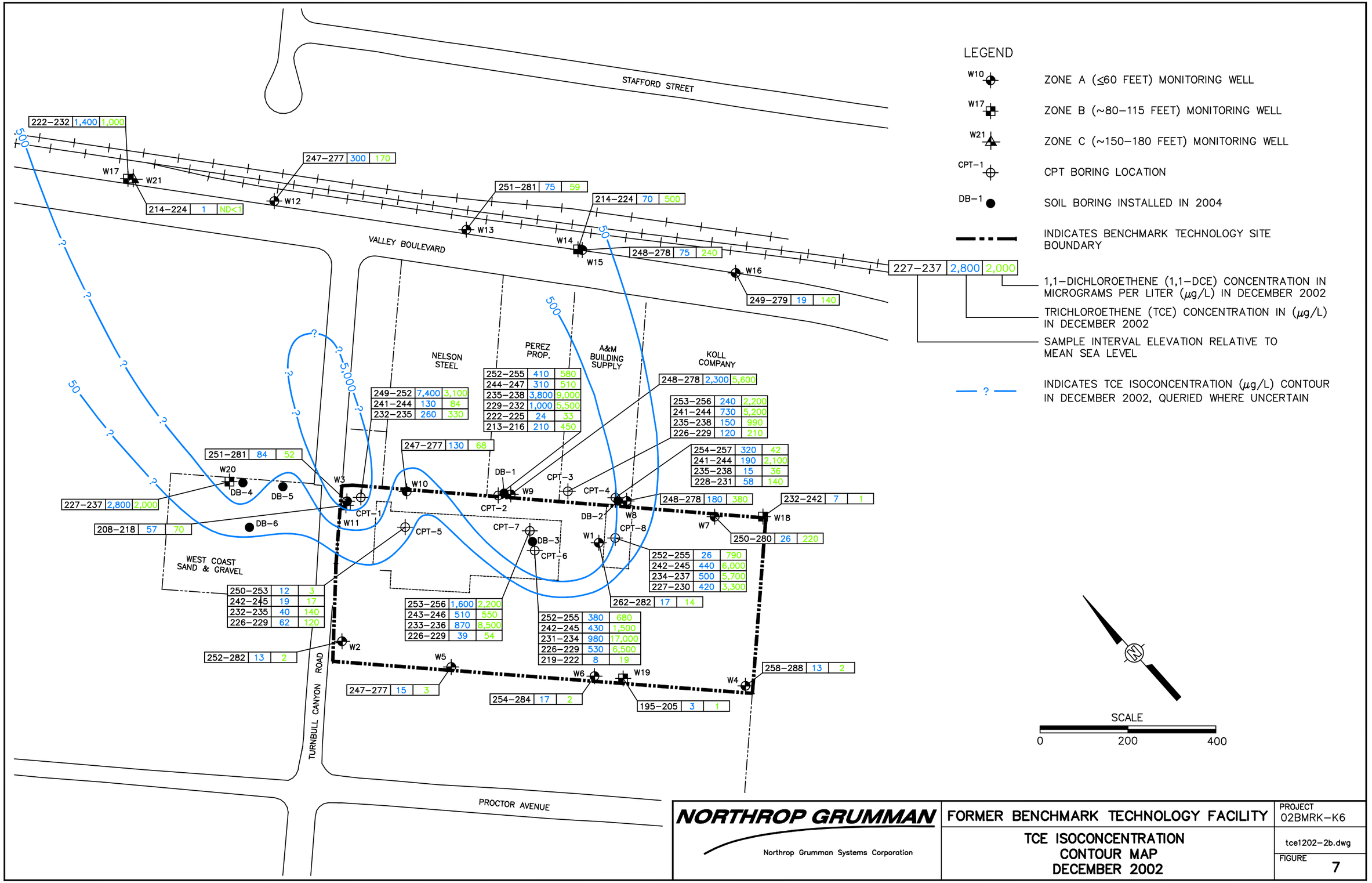
1,1–DCE ISOCONCENTRATION CONTOUR MAP DECEMBER 2002

PROJECT 02BMRK–K6

dce1202–2b.dwg

FIGURE 6

March 13, 2012 4:59 am



NORTHROP GRUMMAN Northrop Grumman Systems Corporation	FORMER BENCHMARK TECHNOLOGY FACILITY TCE ISOCONCENTRATION CONTOUR MAP DECEMBER 2002	PROJECT 02BMRK–K6 tce1202–2b.dwg FIGURE 7

March 13, 2012 4:59 am